UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/833,493	04/11/2001	Branko D. Kovacevic	ATI.0100330	2976

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EXAMINER
VOLPER, THOMAS E

ART UNIT	PAPER NUMBER
2665	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)	
Office Action Summary	09/833,493	KOVACEVIC, BRANKO D.	
	Examiner	Art Unit	
	Thomas Volper	2665	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-56_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-56_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _7/28/03_.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1.   Claim 39 is objected to because of the following informalities: Claim 39 is a duplicate of

claim 20. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

3.   Claims 52-56 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention.

4.   Claim 52 recites the limitation "the PES packets" in line 6. There is insufficient

antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

6.   Claims 1, 5-7, 25, 29-31, and 47 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Har-Chen et al. (US 6,429,902).

Regarding claims 1, 5, 25, 29, and 47, Har-Chen discloses determining a synchronization state of an audio data relative to a system clock, maintaining a current playback in a first state, and making a first playback adjustment to the audio data in a second state (col. 5, lines 30-36). Har-Chen also discloses that different size counters may be used to achieve different levels of time-accuracy in synchronizing audio data to a local time clock (col. 6, line 63 – col. 7, line 9). Har-Chen also discloses decoding and synchronizing audio data belonging to different types of data streams (col. 6, liens 18-33). Although Har-Chen discloses using different counters for different levels of accuracy, Har-Chen fails to expressly disclose a third state in which a second playback adjustment is made providing a better level of synchronization than the first playback adjustment. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to provide the ability to switch between the first and second playback adjustments to achieve different levels of accuracy in synchronization. One of ordinary skill in the art would have been motivated to do this in order to provide an accuracy level of synchronization commensurate with the sampling rate of a particular type of audio data being decoded.

Regarding claims 6 and 30, Har-Chen discloses performing a duplicating or eliminating of audio samples in order to achieve synchronization (col. 5, lines 33-36). A sample rate conversion is effectively achieved when an audio sample is duplicated or eliminated.

Regarding claims 7 and 31, Har-Chen discloses a video PES and audio PES are multiplexed for transport, then separated back into video and audio streams to be synchronized for decoding (col. 1, lines 41-45). Thus, the synchronization method of Har-Chen at the decoder performs the adjustments to PES packets.

7.   Claims 2-4, 26-28, and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Har-Chen et al. (US 6,429,902) as applied to claims 1, 5-7, 25, 29-31, and 47 above, and further in view of Nuber et al. (US 5,703,877).

Regarding claims 2-4, 26-28, and 48, Har-Chen fails to expressly disclose a fourth state of synchronization that initializes the system clock to a predefined value based on a program counter clock for MPEG-type data associated with the source of the audio data. Nuber discloses a state for initializing a system clock at the decoder based on a PCR value of the source clock (col. 2, lines 4-8 and col. 9, lines 13-33). This meets the limitation of a predetermined value based on a program counter clock for MPEG-type data. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to include this initialization state in the invention of Har-Chen. One of ordinary skill in the art would have been motivated to do this in order to start the decoding process of audio data in sync with the remote encoder clock.

8.   Claims 8-24, 32-46, and 49-51, are rejected under 35 U.S.C. 103(a) as being unpatentable over Har-Chen et al. (US 6,429,902) as applied to claims 1, 5-7, 25, 29-31, and 47 above, and further in view of Maturi et al. (US 5,960,006).

Regarding claims 8, 9, 32, and 33, Har-Chen discloses repeating or dropping data elements in order to achieve synchronization (col. 7, lines 20-28). Har-Chen fails to expressly disclose repeating or dropping whole PES packets. Maturi discloses repeating or dropping whole frames in a program stream (col. 7, lines 49-57). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to repeat or drop PES packets to

achieve synchronization of audio data in the invention of Har-Chen. One of ordinary skill in the art would have been motivated to do this in order to save processing power if the desired level of accuracy could be met at this coarse adjustment.

Regarding claims 10-12, 34-36, 44, 45, and 51, Har-Chen discloses comparing a program clock reference (PCR) to a local time counter (LTC) and then comparing this difference to a tolerance to determine the elimination or duplicating of audio samples (col. 5, lines 30-36). This LTC of Har-Chen meets the limitation of an STC. Har-Chen fails to expressly disclose comparing a PTS to the LTC. Maturi discloses comparing a PTS value to a system clock time in deciding whether to skip or repeat a data unit (see Abstract). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to compare a PTS value to the LTC of Har-Chen instead of the PCR value. One of ordinary skill in the art would have been motivated to do this in order to achieve synchronization of audio data that takes into account the relevancy of a particular audio sample at the time of synchronization, i.e. whether it still meets its desired decoding time, in addition to synchronizing the encoder and decoder system clocks.

Regarding claims 13, 14, and 37, Har-Chen discloses the decoding of different types of audio data that have different sampling rates (col. 6, Table I).

Regarding claim 15, the PCR of Har-Chen acts as a stream identifier by identifying what program audio data belongs to, which implicitly identifies the type of audio data (col. 6, line 10-46).

Regarding claims 16, 20, 38, and 39, as described in the paragraph regarding claims 1, 5, 25, 29, and 47 above, Har-Chen discloses an obvious combination meeting the limitations of a

second state and third state for different playback adjustments. Har-Chen fails to expressly

disclose a tolerance indicating a range of 2 audio samples to 32 audio sample for the first

playback adjustment, and a range of 1 audio frame to 3 audio frames for the second playback

adjustment. However, it is generally considered to be within the ordinary skill in the art to

adjust, vary, select or optimize the numerical parameters or values of any system absent a

showing of criticality in a particular recited value. The burden of showing criticality is on

Applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph

Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129

(CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955); In re Saether, 492 F.2d

849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In

re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). At the time the invention was made it

would have been obvious to a person of ordinary skill in the art to use the previously mentioned

ranges associated with the second and third states. One of ordinary skill in the art would have

been motivated to use these ranges in order to meet the requirements of a particular system

implementation.

Regarding claims 17, 18, 21, and 22, Har-Chen discloses the decoding of different types

of audio data that have different sampling rates (col. 6, Table I).

Regarding claims 19 and 23, the PCR of Har-Chen acts as a stream identifier by

identifying what program audio data belongs to, which implicitly identifies the type of audio data

(col. 6, line 10-46).

Regarding claims 24 and 40, Har-Chen discloses a variable tolerance for requiring

elimination or duplication in a synchronization state (col. 5, lines 36).

Regarding claim 41 and 42, Har-Chen discloses that counters for comparing sampling

rates may be implemented in software or hardware (col. 6, line 63- col. 7, line 18).

Regarding claim 43, Har-Chen discloses that an incoming bitstream must be separated

into audio and video streams to be synchronized for decoding (col. 1, lines 41-45). This meets

the limitation of a demultiplexer.

Regarding claims 46, 49, and 50, Har-Chen discloses eliminating or duplicating data

elements at the audio sample level (col. 5, lines 30-36).

9.   Claims 52-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maturi et al.

(US 5,960,006) in view of Har-Chen et al. (US 6,429,902).

Regarding claim 52, Maturi discloses receiving an MPEG-type transport stream, and

demultiplexing the MPEG-type transport stream into transport packets (col. 4, line 40 – col. 5,

line 60). Maturi also discloses determining if a PTS value associated with the PES packets is

within a predefined value of the system time clock, and when the PTS value is not within the

predefined value, adjusting PES packets related to the transport packets (see Abstract). Maturi

fails to expressly disclose synchronizing a system time clock to a program clock reference

received through the MPEG-type transport stream. Maturi also fails to expressly disclose

adjusting audio samples related to the transport packets packets when the PTS value is within the

predefined value (col. 5, lines 30-36). Har-Chen discloses synchronizing a system time clock to

a program clock reference (col. 4, lines 33-57). Har-Chen also adjusting audio samples related to

a MPEG-type stream (col. 5, lines 30-36). Additionally, Har-Chen discloses that different size

counters may be used to achieve different levels of time-accuracy in synchronizing audio data

samples (col. 6, line 63 – col. 7, line 9). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to synchronize the local system clock with a received program clock reference in the invention of Maturi. It also would have been obvious to provide the ability to adjust audio samples in addition to PES packets. One of ordinary skill in the art would have been motivated to synchronize the local system clock with a received program clock reference in order to eliminate time differences between the remote encoder system clock and local decoder system clock. One of ordinary skill in the art would have been motivated to provide adjustments to audio samples to achieve a finer level of accuracy in audio synchronization.

Regarding claim 53 and 54, in order to provide synchronization adjustments on the PES packet and audio sample levels as described in the above paragraph, the transport packets must be processed into PES packets, which in turn must be processed into audio samples.

Regarding claim 55, Maturi in view of Har-Chen fails to expressly disclose the predetermined value indicates a range of 1 audio frame to 3 audio frames for playback adjustment. However, it is generally considered to be within the ordinary skill in the art to adjust, vary, select or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on Applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). At the time the invention was made it

would have been obvious to a person of ordinary skill in the art to use the previously mentioned

range associated with the predetermined value. One of ordinary skill in the art would have been

motivated to use this range in order to meet the requirements of a particular system

implementation.

Regarding claim 56, Maturi fails to expressly disclose the time required for playing audio

frames is calculated by determining an audio data type. Har-Chen discloses the ability to decode

audio data of diverse types that have different sampling rates (col. 6, Table I). At the time the

invention was made, it would have been obvious to a person of ordinary skill in the art to

determine the time required for playing audio frames based on audio data type. One of ordinary

skill in the art would have been motivated to do this in order to apply the synchronization feature

of Maturi to multiple types of audio streams.

Conclusion

10.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

    - Hurst, Jr. (US 6,034,731) MPEG Frame Processing Method and Apparatus

    - Maturi et al. (US 5,905,768) MPEG Audio Synchronization Using Subframe Skip and

Repeat

11.   Any inquiry concerning this communication, or earlier communications from the

examiner should be directed to Thomas Volper whose telephone number is (571) 272-3151. The

examiner can normally be reached between 8:30am and 5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Huy Vu, can be reached at (571) 272-3155. Any inquiry of a general nature or

relating to the status of this application or proceeding should be directed to the receptionist

whose telephone number is (571) 272-2600.

Thomas E. Volper

TBV

November 8, 2004

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